



PCT

## RAW SEQUENCE LISTING

DATE: 05/15/2003

PATENT APPLICATION: US/10/088,920A

TIME: 13:50:01

Input Set : A:\25835104.app

Output Set: N:\CRF4\05152003\J088920A.raw

3 11108 APPLICANT: KIMAKI, NORIYUKI

4 YASOHARA, YOSHIEKO

5 HASEGAWA, JUNZO

6 11208 TITLE OF INVENTION: NOVEL CARBONYL REDUCTASE, GENE THEREFOR, AND METHOD OF USING THE SAME

7 11308 FILE REFERENCE: 025225/0104

8 11408 CURRENT APPLICATION NUMBER: 10/088,920A

9 11418 CURRENT FILING DATE: 2002-06-03

10 11508 PRIOR APPLICATION NUMBER: PCT/JPC1/06619

11 11518 PRIOR FILING DATE: 2001-08-01

12 11608 PRIOR APPLICATION NUMBER: JP 2000-232756

13 11518 PRIOR FILING DATE: 2000-08-01

14 11608 NUMBER OF SEQ ID NOS: 11

15 12108 SEQ ID NO: 1

16 12118 LENGTH: 277

17 12128 TYPE: CDS

18 12138 ORGANISM: Microbacterium luteus

19 12148 SEQUENCE: 1

20 Met Arg Arg Met Thr Leu Pro Ser Gly Glu Ser Ile Pro Val Leu Gly

21 1 5 10 15

22 Gln Gly Thr Trp Gly Trp Gly Glu Asp Pro Gly Arg Arg Gly Asp Glu

23 20 25 30

24 Val Ala Ala Leu His Ala Gly Leu Glu Leu Gly Met Thr Leu Val Asp

25 35 40 45

26 Thr Ala Glu Met Tyr Ala Asp Gly Gly Ala Glu Glu Val Ala Gly Glu

27 50 55 60

28 Ala Leu Ala Gly Arg Arg Asp Glu Ala Phe Val Val Ser Lys Val Met

29 65 70 75 80

30 Pro Ser His Ala Ser Arg Ser Gly Thr Ile Ala Ala Cys Glu Arg Ser

31 85 90 95

32 Leu Lys Arg Leu Gly Thr Asp Arg Ile Asp Leu Tyr Leu Leu His Trp

33 100 105 110

34 Gln Gly Arg Tyr Pro Leu Gln Asp Thr Val Ala Ala Phe His Gln Leu

35 115 120 125

36 Val Glu Asp Gly Lys Ile Arg Tyr Trp Gly Val Ser Asn Ile Asp Ile

37 130 135 140

38 Arg Ala Leu Thr Thr Thr Thr Thr Thr Thr Thr Thr Thr Thr Thr

39 145 150 155 160

40 Thr Asp Thr Thr Thr Thr Thr Thr Thr Thr Thr Thr Thr Thr

41 165 170 175

42 Leu Leu Pro Trp Cys Ala Asp His Gln Leu Pro Val Met Ala Tyr Leu

43 180 185 190

44 Pro Ile Glu Gln Gly Arg Ile Leu Asp Asp Thr Thr Leu Asn Asp Val

45 195 200 205

ENTERED

## RAW SEQUENCE LISTING

DATE: 05/15/2003

PATENT APPLICATION: US/10/088,920A

TIME: 13:50:01

Input Set : A:\25835104.app

Output Set: N:\CRF4\05152003\J088920A.raw

67 Ala Ala Arg His Ser Val Ser Pro Ala Ala Ala Ala Leu Ala Trp Val  
 68 110 215 220  
 70 Leu Arg Arg Asp Ser Leu Cys Thr Ile Pro Lys Ala Ser Ser Pro Gln  
 71 225 230 235 240  
 72 His Val Arg Asp Asn Ala Thr Ala Leu Asp Val Glu Leu Thr Arg Glu  
 73 245 250 255  
 74 Asp Leu Asp Ala Leu Asp Arg Ala Phe Pro Pro Pro Ser Gly Pro Arg  
 75 260 265 270  
 76 Pro Leu Glu Met Leu  
 80 275

81 110 SEQ ID NO: 2

82 110 LENGTH: 1410

83 110 TYPE: DNA

84 110 ORGANISM: Micrococcus luteus

85 110 FEATURE:

86 110 NAME/KEY: CDS

87 110 LOCATION: (108)..(933)

88 110 SEQUENCE: 2

89 ggtaacccgac gacatctat aagccagcac cggtagagga cgcgcggccc cttagaggat 60  
 90 ctacagccac gtccgcctc aggaacaaca gaaggaagtg atgcggg atg cga cgg 116  
 91 Met Arg Arg  
 92 1  
 93 atg cca ctg cag agt ggg gag taa atc cct gta ctg ggt cag gga acc 164  
 94 Met Thr Leu Pro Ser Gly Glu Ser Ile Pro Val Leu Gly Glu Gly Thr  
 95 10 15  
 96 tgg ggc tgg ggt gag gac ccc ggc cgc cgc ggc gac gag gcc gcc ggc 212  
 97 Trp Gly Trp Gly Glu Asp Pro Gly Arg Arg Gly Asp Glu Val Ala Ala  
 98 20 25 30 35  
 99 ctg cag gcc ggc ctg gag ctg ggc atg aag ctg gtc gac acc gcc gag 260  
 100 Leu His Ala Gly Glu Leu Gly Met Thr Leu Val Asp Thr Ala Glu  
 101 40 45 50  
 102 atg taa gcc gac ggc ggt ggc gag gag gtc ggt ggt gaa gca ttg gcg 308  
 103 Met Tyr Ala Asp Gly Gly Ala Glu Glu Val Ala Gly Glu Ala Leu Ala  
 104 55 60 65  
 105 ggt cgc cgc gac gag ggc ttc gtc gtc agc aag gtc atg cgc tcc cac 356  
 106 Gly Arg Arg Asp Glu Ala Phe Val Val Ser Lys Val Met Pro Ser His  
 107 70 75 80  
 108 gcc taa cgt tcc ggc aag atc ggc gcc tgc gaa cgc agc ctg aaa cgc 404  
 109 Ala Ser Arg Ser Gly Thr Ile Ala Ala Cys Glu Arg Ser Leu Lys Arg  
 110 85 90 95  
 111 ctg ggc acc gat cga atc gac ctg tac ctg ctg cac tgg cac gcc agg 452  
 112 Leu Gly Thr Asp Arg Ile Asp Leu Tyr Leu Leu His Trp Gln Gly Arg  
 113 100 105 110 115  
 114 taa ccg ctg cag gat acc gtc ggc gcc ttc cac gag ctg gac gag gac 500  
 115 Tyr Pro Leu Gln Asn Thr Val Ala Ala Phe His Gln Leu Val Gln Asp  
 116 120 125 130  
 117 gaa aaa atc cca tac tgg gcc ctg agc aac ttc gac cac cga gcc ctg 548  
 118 Arg Lys Val Ala Tyr Val Gly Val Ser Ala Leu Arg Glu Val Val Val  
 119 135 140 145

PATENT APPLICATION: US/10/088,920A

TIME: 13:50:02

Input Set : A:\25835104.app

Output Set: N:\CRF4\05152003\J088920A.raw

```

135 gcc aag ctg aag gac gtg ccg ggc acc agc ggg ctg acc aac gat cag 596
136 Ala Glu Leu Gln Asp Val Pro Gly Thr Ser Gly Leu Thr Thr Asp Gln
137 150 155 160
138 gtg ctg tac aac ctg tgg cgg cga gga ccg gaa tac gac ctg ctg cgg 644
139 Val Leu Tyr Asn Leu Ser Arg Arg Gly Pro Glu Tyr Asp Leu Leu Pro
140 165 170 175
141 tgg tgc gcc aac cac cag ctg ccg gtc atg gcc tac tgg ccg atc gag 697
142 Trp Cys Ala Asp His Gln Leu Pro Val Met Ala Tyr Ser Pro Ile Glu
143 180 185 190 195
144 cag agc cgc atc att gac gac aac aac ctg aac gac gtc gcc gcc cgt 741
145 Gln Lys Arg Ile Leu Asp Asp Thr Thr Leu Asn Asp Val Ala Ala Arg
146 200 205 210
147 cag agc gtc agc ccc gcc gcc gcc gcc att gcc tgg gtg ctg cgc cgc 784
148 His Ser Val Ser Pro Ala Ala Ala Ala Leu Ala Trp Val Leu Arg Arg
149 215 220 225
150 gac tgg ctg tgg aac atc ccc aag gcc agc agc ccc cag cag gtg cgc 836
151 Asp Ser Leu Cys Thr Ile Pro Lys Ala Ser Ser Pro Gln His Val Arg
152 230 235 240
153 gac aac gcc aca gca ctg gac gtg gag ctg acc cgc gaa gac ctg gat 884
154 Asp Asn Ala Thr Ala Leu Asp Val Glu Leu Thr Arg Glu Asp Leu Asp
155 245 250 255
156 gct ctg gac cgt gcc ttt ccg ccc ccg agc gga ccg cga cca ctg gaa 932
157 Ala Leu Asp Arg Ala Phe Pro Pro Pro Ser Gly Pro Arg Pro Leu Glu
158 260 265 270 275
159 att ctg tgc atg gac aag agc ggc gcc agc ggc ggc ggc ggc ggc ggc 984
160 Met Leu
161 ggggagagcgc tgggtgcagc gcaagtctcc gaaggacctg ctgtgcaccc cctccagaac 1048
162 ggttcacgcg cctccatcga cctctttcct cgagccctgt cgggttcggc gtagggcgctg 1112
163 atccatccgct ggcaggtccc ccaagtggcc tggagccggg cctctctgctt gtcggtgagc 1168
164 aacccggttc cggcgtgcag gggtgcacgg gcggagtaga gggggctgcc cgtggggcgg 1232
165 cgggtggcct gcaggtccctg ctggaccggg cgggtggcag gacccaaagg gtcgcggct 1288
166 aacccgacg ctagcgaccc gggtgtgtga ccgagacgac ctggacaact ggcgtggcg 1344
167 ccaggagat ctcbaaagtc ggcggccggg gttcaggcga tctcagggaa ggaacgggag 1408
168 cc 1410
169 <210> SEQ ID NO: 3
170 <211> LENGTH: 20
171 <212> TYPE: DNA
172 <213> ORGANISM: Artificial Sequence
173 <220> FEATURE:
174 <223> OTHER INFORMATION: Description of Artificial Sequence: Primer
175 <230> FEATURE:
176 <221> NAME/KEY: modified_base
177 <222> LOCATION: (6)
178 <225> LINKS INFORMATION: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20
179 <230> FEATURE:
180 <221> NAME/KEY: modified_base
181 <222> LOCATION: (9)
182 <225> LINKS INFORMATION: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20
183 <400> SEQUENCE: 3

```

## RAW SEQUENCE LISTING

DATE: 05/15/2003

PATENT APPLICATION: US/10/088,920A

TIME: 13:50:01

Input Set : A:\25835104.app

Output Set: N:\CRF4\05152003\J088920A.raw

```

W--> 206 gayacngcng aratgtaygc                                20
209 <210> SEQ ID NO: 4
210 <211> LENGTH: 20
211 <212> TYPE: DNA
212 <213> ORGANISM: Artificial Sequence
214 <220> FEATURE:
215 <223> OTHER INFORMATION: Description of Artificial Sequence: Primer
217 <220> FEATURE:
218 <221> NAME/KEY: modified_base
219 <222> LOCATION: (6)
220 <223> OTHER INFORMATION: a, t, c, g, other or unknown
221 <220> FEATURE:
222 <221> NAME/KEY: modified_base
223 <222> LOCATION: (4)
224 <223> OTHER INFORMATION: a, t, c, g, other or unknown
227 <220> SEQUENCE: 4

W--> 228 tcytcnacna gytgrtgraa                                20
231 <210> SEQ ID NO: 5
232 <211> LENGTH: 26
233 <212> TYPE: DNA
234 <213> ORGANISM: Artificial Sequence
235 <220> FEATURE:
237 <223> OTHER INFORMATION: Description of Artificial Sequence: Primer
239 <220> SEQUENCE: 1
240 <220> SEQUENCE: 1
241 <220> SEQUENCE: 1
242 <220> SEQUENCE: 1
243 <220> SEQUENCE: 1
244 <211> LENGTH: 1
245 <212> TYPE: DNA
246 <213> ORGANISM: Artificial Sequence
247 <220> FEATURE:
249 <223> OTHER INFORMATION: Description of Artificial Sequence: Primer
251 <220> SEQUENCE: 6
252 <220> SEQUENCE: 6
253 <210> SEQ ID NO: 6
254 <211> LENGTH: 46
255 <212> TYPE: DNA
256 <213> ORGANISM: Artificial Sequence
257 <220> FEATURE:
259 <223> OTHER INFORMATION: Description of Artificial Sequence: Primer
261 <220> SEQUENCE: 7
262 <220> SEQUENCE: 7
263 <210> SEQ ID NO: 7
264 <211> LENGTH: 29
265 <212> TYPE: DNA
266 <213> ORGANISM: Artificial Sequence
267 <220> FEATURE:
269 <223> OTHER INFORMATION: Description of Artificial Sequence: Primer
271 <220> SEQUENCE: 8
272 <220> SEQUENCE: 8
273 <223> OTHER INFORMATION: Description of Artificial Sequence: Primer
275 <220> SEQUENCE: 9
276 <220> SEQUENCE: 9

```

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/088,920A

DATE: 05/15/2003

TIME: 13:50:01

Input Set : A:\25835104.app

Output Set: N:\CRF4\05152003\J088920A.raw

```

279 <210> SEQ ID NO: 9
280 <212> LENGTH: 144
281 <213> TYPE: DNA
282 <215> ORGANISM: Artificial Sequence
283 <220> FEATURE:
285 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic
286     double-stranded DNA
288 <400> SEQUENCE: 2
289 gatttctaaq gagatttaca tatgcgtcgt atgattttac catctggtga atctattcca    60
290 gttttagctc aaggtacttg gggttgggtt gaagatccag gtcgtcgtgg tgatgaagtt    120
291 gctgatttac atgctggtct cgag                                144
292 <210> SEQ ID NO: 10
293 <212> LENGTH: 33
294 <213> TYPE: DNA
295 <215> ORGANISM: Artificial Sequence
296 <220> FEATURE:
298 <223> OTHER INFORMATION: Description of Artificial Sequence: Primer
300 <400> SEQUENCE: 10
301 caggagctct aaggaggcta acaatgtata aag                                33
302 <210> SEQ ID NO: 11
303 <212> LENGTH: 28
304 <213> TYPE: DNA
305 <215> ORGANISM: Artificial Sequence
306 <220> FEATURE:
308 <223> OTHER INFORMATION: Description of Artificial Sequence: Primer
310 <400> SEQUENCE: 11
311 caaggatctt tatcgcgttc ctgcttgg                                28

```

RAW SEQUENCE LISTING ERROR SUMMARY  
PATENT APPLICATION: US/10/088,920A

DATE: 05/15/2003  
TIME: 13:50:02

Input Set : A:\25835104.app  
Output Set: N:\CRF4\05152003\J088920A.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:3; N Pos. 6,9

Seq#:4; N Pos. 6,9